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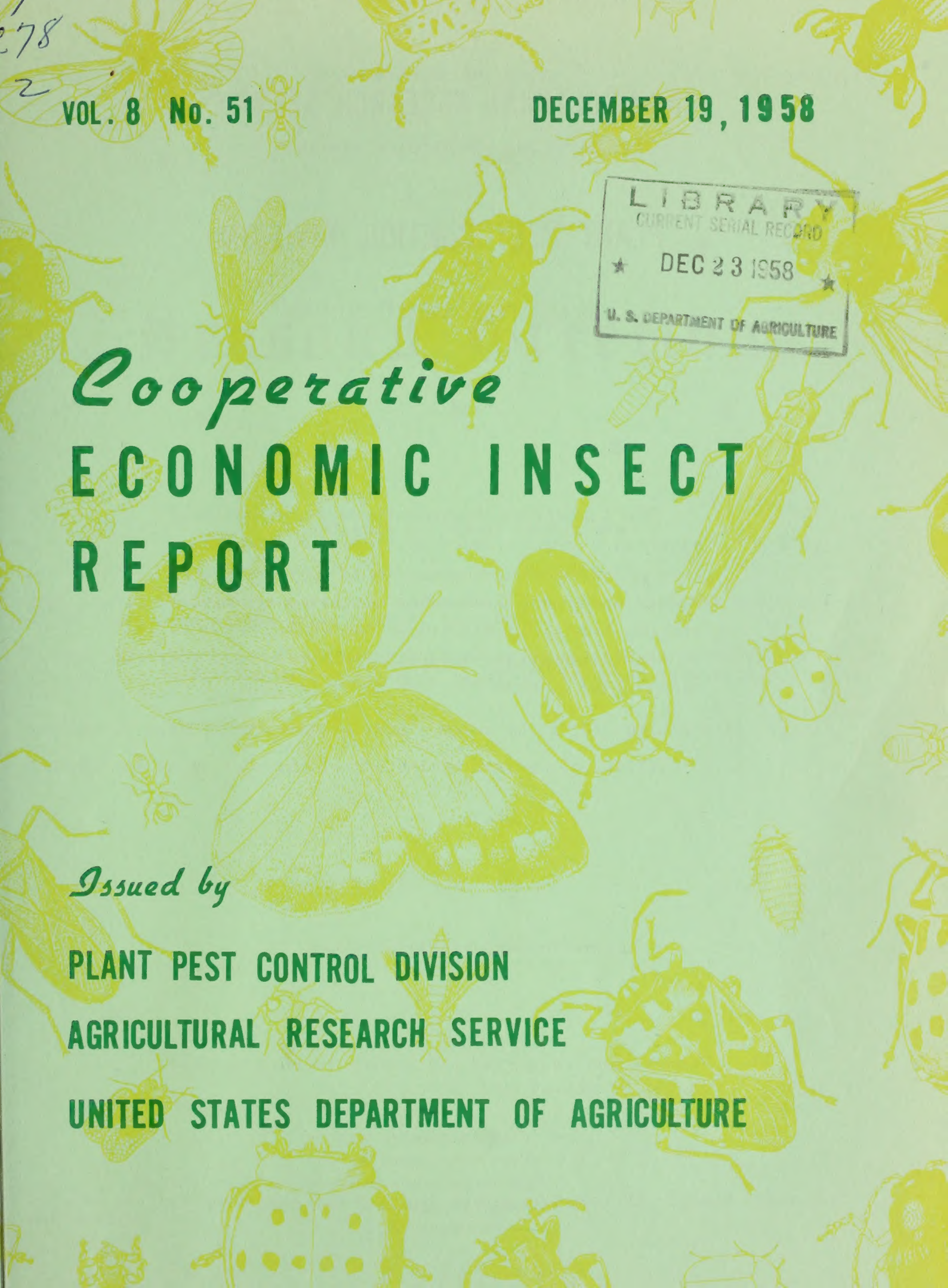

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Division
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Volume 8 December 19, 1958 Number 51

COOPERATIVE ECONOMIC INSECT REPORT

Season's Greetings

Highlights of Insect Conditions

BOLL WEEVIL hibernation survey in North Carolina, South Carolina and Virginia shows lower populations than in 1957. (p. 1008).

INSECT DETECTION: A weevil (Brachyrhinus meridionalis) new to Washington. (p. 1008). An ant (Cardiocondyla nuda minutior) reported from California for the first time. (p. 1009).

SUMMARY OF INSECT CONDITIONS - 1958 - Maine (p. 1010), Delaware (p. 1012).

INSECTS not known to occur in the United States. (p. 1017).

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Reports in this issue are for the week ending December 12, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-DECEMBER 1958 TO MID-JANUARY 1959

The Weather Bureau's 30-day outlook for the period mid-December to mid-January calls for temperatures to average below seasonal normals over the eastern half of the nation except for near normal in the Florida Peninsula. Above normal temperatures are expected to prevail west of the Continental Divide. In the intervening area of the Central Plains about normal averages are in prospect, but with large variations about the normal. Precipitation is expected to equal or exceed normal east of the Appalachians, along the Gulf Coast, and over the eastern Great Lakes. In central and northern portions much of this will be in the form of snow. Equal or above normal amounts are also expected over the Pacific Northwest and in the Central and Northern Plains. In the remainder of the country subnormal precipitation is anticipated.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING DECEMBER 15

Extreme cold and widespread snowfall featured the week's weather east of the Continental Divide, while unseasonably mild temperatures continued in the Far West as drought and a high fire hazard plagued parts of California. Heavy precipitation during the week was limited mostly to the Southeast and East Coast and the Pacific Northwest. As southward creeping Arctic air hovered over most of the North American Continent, temperatures remained far below normal levels throughout the week in northern areas east of the Divide and in southern areas the latter part. In the Great Lakes region and upper Mississippi Valley, temperatures, below the zero mark most nights and even during some days at a few stations, averaged as much as 26° below seasonal levels for the week. Although few new extreme low temperature records were reported, lows ranging from zero to a few degrees above in Oklahoma were the lowest at many stations for December in 30 years, and the mercury touched the zero mark at Hartford, Connecticut, the earliest on record. For New England, the first half of December rates among the coldest in 48 years. A low of -19° at Wabash, Indiana,on the 10th was the second lowest ever recorded in that State so early in December; the lowest was -30° at Marengo on the same date in 1917. Some other lows reported from extreme northern areas included -34° at International Falls, Minnesota, on the 10th; -23° at Lone Rock, Wisconsin, on the 13th; and -22° at Newport, Vermont, on the 11th. Following a weekend cold wave in Louisiana and Texas, temperatures dropped below freezing, except in the lower Rio Grande Valley where freezing was prevented by a cloud cover. Freezing was general over Mississippi, Alabama, Georgia and northern Florida on 1 or 2 days.

Precipitation in most areas east of the Rockies, owing to low temperatures, fell as snow. The main snowfall occurred during a coastal storm on the 11th and 12th. Some snow was reported in all the Southern States, but the most remarkable falls occurred in the eastern Carolinas and Virginia where 7-8 inches covered extensive areas, with extreme amounts of 16-18 inches in north central and northeastern North Carolina. Amounts tapered off to a few inches farther north. At the end of the week, 1-9 inches of snow still covered most sections of the eastern Seaboard States from the Carolinas northward. In the midcontinent area a 1 to 4-inch cover extended over the northern half of

Weather continued on Page 1016

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Infestations observed in most of panhandle area (Daniels), averaged 10 per linear foot in one area of Carson County (Turney), and some damage to oats observed in Van Zandt County. (Davis).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations continued heavy on alfalfa in Payne County despite sub-freezing weather. (Bryan). TEXAS - Light, widespread infestations on alfalfa in Rockwall County. Weather checked a buildup for the present. (Davis).

APHIDS - SOUTH CAROLINA - Unusually abundant on oats and infesting barley in Anderson County. (Nettles et al.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - CALIFORNIA - Larvae light on pear trees in Ophir, Placer County. (Cal. Coop. Rpt.).

A LOOPER (Anacamptodes fragilaria) - CALIFORNIA - Medium to heavy on navel orange trees in Redlands area, San Bernardino County, with 100-300 per tree on 80 acres of oranges. (Atkins).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Heavy in walnuts in Sacramento, Sacramento County. Heavy in old peach fruit and light in walnuts in Marysville, Yuba County. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - TEXAS - Attacked lemon trees in Calhoun County. (Garner).

PEAR PSYLLA (Psylla pyricola) - CALIFORNIA - Reported on pear trees in the Newcastle area of Placer County. (Cal. Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Specimens taken from traps in the Los Gatos, Santa Clara and San Jose areas of Santa Clara County. (Cal. Coop. Rpt.).

GRAPE ERINEUM MITE (Eriophyes vitis) - CALIFORNIA - Caused concern to growers in Lodi area, San Joaquin County, with as much as 25-30 percent damaged spurs in some vineyards. (Cherry).

TRUCK CROP INSECTS

A CUTWORM (Proxenus mindara) - CALIFORNIA - Caused some damage to cantaloup in the Los Banos area, Merced County. (Cal. Coop. Rpt.).

A STRAWBERRY CROWN MOTH (Ramosia sp., prob. bibionipennis) - CALIFORNIA - Medium on bushberries in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

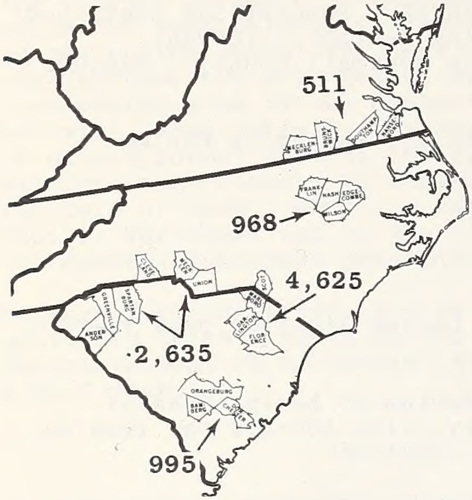
A LEAFHOPPER (Draeculacephala minerva) - CALIFORNIA - Adults light on lettuce plantings in Brawley area of Imperial County. (Cal. Coop. Rpt.).

ONION THRIPS (Thrips tabaci) - TEXAS - Averaged less than one per plant on newly set onions in Dimmit County. (Harding).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - TEXAS - Medium and widespread in Dimmit County. Aster yellows on carrots severe in spots. (Harding).

COTTON INSECTS

Boll Weevil Hibernation Survey in South Carolina, North Carolina and Virginia - 1958. The same five areas in these States were sampled from November 17 to December 4 as in the fall of 1957, with 3 samples of 2 square yards each being taken at each of 30 locations (farm sites) per area. Area 1 consisted of Orangeburg, Bamberg and Dorchester Counties, South Carolina, and averaged 995 live boll weevils per acre, as compared with 3,978 for 1957. Area 2, consisting of Florence, Darlington and Marlboro Counties, South Carolina, and Scotland County, North Carolina, averaged 4,625 per acre, as compared with 11,374 for 1957. Area 3, composed of Anderson, Greenville and Spartanburg Counties, South Carolina, and Mecklenburg, Cleveland and Union Counties, North Carolina, averaged 2,635 live boll weevils per acre, as compared with 6,752 for 1957. Area 4, comprised of Edgecombe, Franklin, Nash and Wilson Counties, North Carolina, averaged 968 live boll weevils per acre, as compared with 2,205 for 1957. Area 5, composed of Brunswick, Mecklenburg, Nansemond and Southampton Counties, Virginia, averaged 511 live boll weevils per acre, as compared with 3,335 for 1957. (Ent. Res., PPC, Coop. States).



Averages by Area

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Increasing damage reported to 140-acre plantation in Stanislaus National Forest in Sonora area, Stanislaus County, with as many as 10-20 trees per acre being killed. (Fowler).

A WEEVIL (Brachyrhinus meridionalis) - WASHINGTON - Specimens collected on privet hedge in Yakima constitute first record for the State. Det. R. E. Warner. (Brunson).

A ROOT BORER - LOUISIANA - Destroyed nursery stocks of Magnolia grandiflora in Covington area. (Spink).

APHIDS - MARYLAND - Macrosiphum rosae heavy on roses at Adelphi, Prince Georges County, November 27. (U. Md., Ent. Dept.). CALIFORNIA - Hyalopterus arundinis heavy on bamboo in Brawley, Imperial County. (Cal. Coop. Rpt.).

SOUTHERN RED MITE (Oligonychus ilicis) - LOUISIANA - Medium on commercial plantings of azalea and holly in Covington area. (Spink).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OKLAHOMA - Moderate to heavy on carnations, chrysanthemums, pepper plants, roses and abelia in northeastern part of State. (Price). Found on chenille plant in Oklahoma City area. (Latham).

WALNUT SCALE (Aspidiotus juglans-regiae) - CALIFORNIA - Medium on Lombardy poplar trees in El Cajon area, San Diego County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE LICE - UTAH - Cattle in Fielding feed yards and on range in western Box Elder County severely infested. (Knowlton).

STORED-PRODUCT INSECTS

Stored-grain Insect Situation in Nebraska - Examination of 51 samples of corn submitted by CCC area supervisors during November showed insects present in 25.6 percent and rodent contamination in 51.9 percent of the bins examined. All insect populations were light. (Kantack).

MISCELLANEOUS INSECTS

A COTTON STAINER (*Dysdercus andreae*) - FLORIDA - Numerous adults and immature forms collected on seaside mahoe at Key West, Monroe County. This species has not previously been reported in large numbers from the State. (Woodruff, Swanson, Dowling).

EARWIGS - LOUISIANA - Heavily infested slab homes in Jefferson and Orleans Parishes. (Spink).

AN ANT (*Cardiocondyla nuda minutior*) - CALIFORNIA - Medium in a concrete terrace in San Diego, San Diego County. This is the first report of this ant from the State. Det. M. R. Smith. (Cal. Coop. Rpt.).

MILLIPEDES - LOUISIANA - Heavily infested yards and driveways in Baton Rouge. (Spink).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea	Heliothis zea
FLORIDA				
Gainesville 12/3-10	4	6		2
Quincy 12/2		1		10
LOUISIANA				
Baton Rouge 12/5-11	26	22	23	
NEBRASKA				
Lincoln 10/20-11/25	34	4		442
SOUTH CAROLINA				
Charleston 12/1-7	20	40	30	1

SUMMARY OF INSECT CONDITIONS - 1958

MAINE

Reported by L. W. Boulanger and R. W. Paulson

Cereal and Forage Insects: A STALK BORER (probably Papaipema nebris) was moderate to severe on untreated corn in Aroostook County. APHIDS caused light damage to oats in Orono, Hartland and southern Aroostook. A WEEVIL (Stomodes gyrosicollis) attacked field crops in the Augusta area. Light infestations and damage by EUROPEAN CORN BORER (Pyrausta nubilalis) occurred in several localized instances. CORN EARWORM (Heliothis zea) was light throughout the State and only one case of light injury was reported. ARMYWORMS caused moderate injury to millet in Androscoggin County and severe damage to one planting in Cumberland County. Several species of CUTWORM adults were taken in large numbers in light traps in the Augusta area but infestations did not develop in proportion.

Fruit Insects: APPLE MEALYBUG (Phenacoccus aceris) infestations continued to increase in many areas; orchards in Waldo and Franklin Counties were particularly hard hit. On the other hand, infestations in northern Androscoggin County began declining from the 1957 level. Natural causes are believed responsible for this decrease. APPLE APHID (Aphis pomi) populations were rather heavy throughout the State although parasitism was surprisingly high in late July. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) infestations were heavy in early season in York County but were kept below injurious levels in most areas by the wet, cool season until late August. EUROPEAN RED MITE (Panonychus ulmi) numbers did not build up to appreciable levels at any time during the season. CODLING MOTH (Carpocapsa pomonella) incidence was about half that of 1957 in trouble areas. APPLE MAGGOT (Rhagoletis pomonella) emergence was considerably delayed and peak emergence was well beyond that of 1957. Infestations in many orchards were moderate and several orchards suffered severe damage. BLUEBERRY INSECTS were generally low in numbers. Most injurious was a THRIPS (Frankliniella vaccinii), moderate infestations of which caused moderate to severe injury in numerous areas in Knox and Lincoln Counties and light infestations of BLUEBERRY MAGGOT (Rhagoletis pomonella) caused light to moderate damage in Washington County. GEOMETRIDS caused light injury to blueberry plants in York and Washington Counties and BLACK ARMY CUTWORM (Actebia fennica) injury was generally low. CYCLAMEN MITE (Steneotarsonemus pallidus) infestations reached high levels early and caused severe crop reductions in many producing areas. Particularly hard hit were sections in Penobscot and Washington Counties. TWO-SPOTTED SPIDER MITE numbers built up early in the latter county; grower control was good with no recurrence during remainder of the season.

Truck Crop Insects: All insects were generally light and damage of little consequence. Among those causing other than just noticeable injury were the following: SPINACH LEAF MINER (Pegomya hyoscyami) caused moderate damage to spinach in the Orono and Hermon areas. ROOT MAGGOTS (probably Hylemya spp.) damage was unusually severe in several vegetable plantings on or near Aroostook Farm. SEED-CORN MAGGOT (Hylemya cilicrura) caused moderate damage to spinach in Cumberland County. A STALK BORER (Papaipema sp.) caused moderate injury to tomatoes in Androscoggin County. Dry and snap beans in the Monmouth area and snap beans in the Hartland section were moderately damaged by MEXICAN BEAN BEETLE (Epilachna varivestis). Infestations of LETTUCE ROOT APHIDS were about the same as 1957. Heaviest infestations continued to be found in Cape Elizabeth area. POTATO INSECTS were low in density, APHIDS (BUCKTHORN, Aphis abbreviata;

POTATO, Macrosiphum solanifolii; GREEN PEACH, Myzus persicae; FOXGLOVE, Myzus solani) and POTATO FLEA BEETLE (Epitrix cucumeris) were slow in developing and peak numbers were much later and smaller than in 1957. Aphid development was also slowed by fungus diseases, parasites and predators. (W. A. Shands, U.S.D.A. and M.A.E.S. staff). TARNISHED PLANT BUG (Lygus lineolaris) injury on raspberries was generally light throughout the State but several areas experienced moderate to severe injury in localized plantings.

Ornamental Insects: For the most part, infestations and damage were light. ROSE CHAFER (Macrodactylus subspinosus) caused moderate injury to a variety of plants in southern Maine and infestations of a GARDEN SLUG caused severe damage to ornamentals in the Portland and Bar Harbor areas. EUROPEAN EARWIG (Forficula auricularia) infestations were heavy in Portland and South Portland causing severe damage to flowering plants. This insect has moved very rapidly north and east in the State; specimens have been recovered in Bar Harbor, Camden, Augusta and Orono. GLADIOLUS THRIPS (Taeniothrips simplex) caused severe injury in Portland and vicinity; also present in moderate numbers in most commercial plantings in Androscoggin and Oxford Counties but damage in these cases was light.

Forest and Shade Tree Insects: (R. W. Nash, Maine Forest Service, Augusta): EASTERN TENT CATERPILLAR (Malacosoma americanum) and GYPSY MOTH (Porthetria dispar) infestations were light. PINE LEAF APHID (Pineus pinifoliae) occurred in outbreak level in eastern and western Maine; damage was moderate to severe. BALSAM GALL MIDGE (Itonida balsamicola) caused moderate damage to balsam fir in eastern sections of the State and BALSAM WOOLLY APHID (Chermes piceae) caused moderate injury in some localized trouble areas. BIRCH LEAF MINER (Fenusa pusilla) occurred in statewide outbreak proportions on gray birch; damage was severe when trees were of ornamental value. YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) increased in southern Maine after several years of scarcity. There was a LARCH SAWFLY (Pristiphora erichsonii) outbreak in Sorrento, with severe local damage. WHITE-PINE WEEVIL (Pissodes strobi) was generally moderate on white pine and spruce; damage moderate. PINE BARK APHID (Pineus strobi) infestations were generally very heavy on white pine with light damage. Aircraft spraying for SPRUCE BUDWORM (Choristoneura fumiferana) on 300,000 acres in northern Maine gave high degree of control in preliminary evaluation. Populations in neighboring unsprayed areas did not decrease as much as expected. Washington County infestations dropped considerably due to high parasitism; parasites were collected and transferred from Aroostook County. The only reported case of trouble from the spraying in northern Aroostook County involved a sick horse which a veterinarian later diagnosed as heart trouble and old age.

Insects Affecting Man and Animals: ELM LEAF BEETLE (Galerucella xanthomelaena) and CLOVER MITE (Bryobia praetiosa complex) caused some annoyance judging from inquiries received in Orono. PUNKIES (probably Culicoides spp.) and BLACK FLIES (Simulium spp.) were very annoying on inland waters and streams. Several flocks of sheep suffered light to moderate damage from SHEEP KED (Melophagus ovinus) infestations. This pest has been increasing in abundance in the State over the past three years.

Miscellaneous Insects: Infestations and damage by a TIMBER BEETLE were moderate in the Wells and Belgrade areas. A CARPENTER ANT (probably Camponotus herculeanus pennsylvanicus) caused moderate damage in camp timbers throughout the State. A heavy infestation of a FUNGUS BEETLE (Typhaea stercorea) was found in a barn in St. Albans; damage was undetermined.

DELAWARE

Prepared by Paul P. Burbutis and Marlin S. Conrad

Highlights: EUROPEAN CORN BORER noticeably increased over 1957 with highest losses ever recorded in peppers. CORN EARWORM was particularly abundant and caused considerable local injury to untreated sweet corn and peppers. GREEN CLOVERWORM populations were very high, especially on soybeans. ALFALFA WEEVIL remains the number one pest on alfalfa with control measures mandatory for economic yields. IMPORTED CABBAGEWORM and CABBAGE LOOPER were major pests on crucifers statewide. COLORADO POTATO BEETLE on potatoes and tomatoes, TOBACCO HORNWORM on tomatoes, ASPARAGUS BEETLE on asparagus, SALT-MARSH CATERPILLAR on a variety of crops and PEA APHID on peas were important pests. CELERY LOOPER on carrots, PAINTED-LADY on soybeans, BULB FLY (Eumerus stigatus) on carrots, WILLOW SAWFLY on willow, an OAK SAWFLY (Caliroa lineata) on pin and red oak, a WHITE FLY (Aleurochiton forbesii), a LEAFHOPPER (Typhlocyba modesta) on red maple, a GALL MIDGE (Dasyneura gleditschiae) on Moraine locust and an APHID (Myzocallis tiliae) on linden, were all encountered for the first time as possible new pests in the State. Some have previously been reported either as pests of different host plants or with no host information.

Cereal and Forage Insects: EUROPEAN CORN BORER (Pyrausta nubilalis) mortality of overwintering borers averaged 22 percent, 10 percent lower than spring of 1957. Pupation approached 50 percent in Sussex County by the last week of April and by May 20th adults were numerous. Fall abundance survey and weekly inspections indicate a continuing of the general increasing trend in abundance. Despite this, corn yields for 1958 reached a record high. The fall survey averaged 249 borers per 100 plants, compared with 90 in 1957. PEA APHID (Macrosiphum pisi) attained much higher proportions in alfalfa and clover than in 1957. First found in alfalfa March 8th, populations reached a peak by late May and early June. They decreased until August when a definite increase was noticeable and by early September were again numerous statewide. ALFALFA WEEVIL (Hypera postica) larvae became fairly common throughout the State by the third week of March. Highest larval populations occurred from mid-April to July with an apparent but smaller second peak occurring during August. Some mature larvae were picked up as late as November. Highest adult populations occurred during June and July. Injury was noticeable throughout the State in untreated fields in May. MEADOW SPITTLEBUG (Philaenus leucophthalmus) was common on alfalfa and clovers throughout the season but caused serious injury. GREEN CLOVERWORM (Plathypena scabra) was rather abundant in soybeans, alfalfa and clover. Injury did not noticeably reduce yields. CORN EARWORM (Heliothis zea) caused very light injury to soybeans, fed quite prevalently in ears of field and sweet corn with losses mostly in untreated sweet corn, and remained rather common in clover and alfalfa during the late summer. ARMYWORM (Pseudaletia unipuncta) caused some injury to late field corn in Sussex County but corn was able to outgrow the injury. Barley was most common host during early season. Numerous on alfalfa and clover during late June and July. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) was generally scarce. FALL ARMYWORM (Laphygma frugiperda) was common on late field corn and alfalfa throughout the State causing only light injury. GARDEN WEBWORM (Loxostege similalis) was first found in alfalfa in Kent County during July, but remained scarce until August when it became common in some fields of alfalfa throughout the State. No serious injury recorded. CLOVER ROOT CURCULIO (Sitona hispidula) adults decreased on alfalfa and clovers with very little injury noticeable.

JAPANESE BEETLE (*Popillia japonica*) very much decreased on alfalfa, clover and corn. Somewhat common on soybeans in early summer but decreased rapidly, with no serious injury. DUSKY SAP BEETLE (*Carpophilus lugubris*) remained more prevalent in Sussex County than in northern regions. Injury was never extensive. CORN FLEA BEETLE (*Chaetocnema pulicaria*) infested corn throughout the season, apparently never reached serious proportions. POTATO LEAFHOPPER (*Empoasca fabae*) increased gradually on alfalfa but was generally not dangerous. Also somewhat common on red clover and soybeans. CORN LEAF APHID (*Rhopalosiphum maidis*) was first noted in Sussex County the first of July, rapidly increased by late July, and by the second week of August was prevalent throughout the State, but markedly decreased by end of August. TARNISHED PLANT BUG (*Lygus lineolaris*) was very abundant in alfalfa, clover and soybeans. STALK BORER (*Papaipema nebris*) was common along border rows of field corn statewide in late June. SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) remained common in most forage crops through the first of November. BLACK CUTWORM (*Agrotis ypsilon*) caused noticeable injury in some corn fields. STRAWBERRY SPIDER MITE (*Tetranychus atlanticus*) caused some injury to soybeans in late summer in eastern Sussex County but was greatly reduced compared with 1957. SALT-MARSH CATERPILLAR (*Estigmene acrea*) was common most of the summer statewide on soybeans but no control was necessary. CLOVER HEAD CATERPILLAR (*Grapholitha interstinctana*) became prevalent in red clover in some fields. CLOVER LEAF WEEVIL (*Hypera punctata*) was common in clover and alfalfa the first of April but diminished rapidly. PAINTED-LADY (*Vanessa cardui*) fed on soybeans, late June in Sussex County. BEAN LEAF BEETLE (*Cerotoma trifurcata*) caused slight injury to soybeans in late summer. ALFALFA CATERPILLAR (*Colias philodice eurytheme*) was statewide on alfalfa but most common in Sussex County with 3-4 per 10 sweeps during early August. LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) did not reach economic proportions in clover or alfalfa. BLISTER BEETLES (*Epicauta* spp.) were common in fields of alfalfa mostly in the northern half of State. ENGLISH GRAIN APHID (*Macrosiphum granarium*) was common on cereal crops as early as March 8 in Kent and Sussex Counties and was found on winter rye cover crop in late October. CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) became fairly common on clover during late April but was not serious. Adults were present through October. RAPID PLANT BUG (*Adelphocoris rapidus*) and ALFALFA PLANT BUG (*A. lineolatus*) were present in small numbers on alfalfa most of the season, the former species most common.

Fruit Insects: APHIDS were generally not serious in orchards where control was applied. ROSY APPLE APHID (*Anuraphis roseus*) initially occurred in New Castle County in late April, later on apple foliage in Kent and Sussex Counties. APPLE APHID (*Aphis pomi*) was present in most orchards the first of May. WOOLLY APPLE APHID (*Eriosoma lanigerum*) occurred occasionally early in the season around pruning scars. STRAWBERRY WEEVIL (*Anthonomus signatus*) was very common early in Sussex County on strawberries. Adults caused moderate injury to flowers. RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) was most prevalent in Kent County. CODLING MOTH (*Carpocapsa pomonella*) adults first appeared on May 13 and on June 10 fruit entries were rather common in untreated orchards. Very light infestations of UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) occurred during June. PLUM CURCULIO (*Conotrachelus nenuphar*) was normal on fruit this season. PEAR-SLUG (*Caliroa cerasi*) infestation was very heavy on foliage of untreated cherry in June, New Castle County. EUROPEAN CORN BORER (*Pyrausta nubilalis*) bored in stalks and fruit of blueberries in northern Sussex County during late June. JAPANESE BEETLE (*Popillia japonica*) was very light on peach trees in Kent County. EUROPEAN RED MITE (*Panonychus ulmi*) buildup was noticeable in Sussex County apples the first of July and by late July infestations were common statewide. In early August populations were more prevalent and some apple trees showed bronzing. Some infestations also noted on peach trees. SCHOENE SPIDER MITE (*Tetranychus schoenei*) buildup on apples in Sussex County the first of August. Infestations were not serious in sprayed orchards.

BAGWORM (Thyridopteryx ephemeraeformis) nearly defoliated several young apple trees in Sussex County during late July. A heavy infestation occurred in New Castle County on raspberries in August.

Vegetable Insects: EUROPEAN CORN BORER infestation increased, being heavy on potatoes, corn and peppers. Loss of canning peppers in Kent and Sussex Counties approached 50 percent. CORN EARWORM (Heliothis zea) caused noticeable injury to pepper pods in August and September. IMPORTED CABBAGEWORM (Pieris rapae) was common statewide on all crucifers and caused considerable injury to untreated crops, as late as November. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) caused considerable local injury to potatoes and tomatoes. HORNWORMS (Protoparce spp.) were common on tomatoes statewide. Most severe injury was in Sussex County in late summer. Noticeable injury also occurred to peppers in Sussex County. TARNISHED PLANT BUG was very abundant on many crops. CABBAGE LOOPER (Trichoplusia ni) was prevalent on crucifers, causing rather heavy injury to untreated fields. Feeding was also common on tomatoes, potatoes, peppers and beans until late summer. POTATO FLEA BEETLE (Epitrix cucumeris) became prevalent on potatoes causing moderate injury until mid-summer. POTATO APHID (Macrosiphum solanifolii) was common on potatoes and tomatoes during early summer. MEXICAN BEAN BEETLE (Epilachna varivestis) was common statewide with heaviest injury in home gardens. POTATO LEAFHOPPER (Empoasca fabae) populations on potatoes were normal. SALT-MARSH CATERPILLAR (Estigmene acrea) was common on lima beans and asparagus. ASPARAGUS BEETLE (Crioceris asparagi) fed heavily on asparagus ferns statewide and SPOTTED ASPARAGUS BEETLE (C. duodecimpunctata) was prevalent and apparently destroyed a large number of seeds. ASPARAGUS MINER (Melanagromyza simplex) was noticeable, but decreased over 1957.CABBAGE APHID (Brevicoryne brassicae) populations were not noticeable on cabbage and cauliflower until late summer. BEAN LEAF BEETLE (Cerotoma trifurcata) caused slight injury to snap beans in late August. SQUASH VINE BORER (Melittia cucurbitae) was destructive in small plantings of squash and HARLEQUIN BUG (Murgantia histrionica) was prevalent on small plantings of cabbage in Sussex County. BLISTER BEETLES (Epicauta spp.) were light on pumpkin-squash in Kent County and were common on carrots in New Castle County. CELERY LOOPER (Anagrapha falcifera) was heavy on carrots in New Castle County. CELERYWORM (Papilio polyxenes asterius) caused slight injury to carrots in New Castle County. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was very common on carrots in late summer statewide. GREEN CLOVERWORM (Plathypena scabra) was heavy in lima beans most of the summer. GREEN PEACH APHID (Myzus persicae) was effectively controlled most places on peppers and potatoes. FALL ARMYWORM (Laphygma frugiperda) infested peppers in late summer. BLACK CUTWORM (Agrotis ypsilon) caused damage to tomato and pepper sets early in the season. STRIPED CUCUMBER BEETLE (Acalymma vittata) was prevalent on pumpkin-squash and cucumbers during mid-summer but decreased rapidly thereafter. STRAWBERRY SPIDER MITE (Tetranychus atlanticus) was much decreased over 1957 on lima beans. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) fed very lightly on asparagus, tomatoes and lima beans. A FLEA BEETLE (Phyllotreta cruciferae) was noticeable early on crucifers, never reached injurious proportions. COTTON SQUARE BORER (Strymon melinus) fed on lima beans in Sussex County in July, with slight injury. DIAMONDBACK MOTH (Plutella maculipennis) infestations were common on young cabbage plants in Kent County during July. GOLDEN TORTOISE BEETLE (Metriona bicolor) was very light on sweetpotatoes in Sussex County. VINEGAR FLIES (Drosophila spp.) became very numerous in tomato and pepper fields throughout the State during late August and early September.

Forest, Ornamental and Shade Tree Insects: BAGWORM (Thyridopteryx ephemeraeformis) was especially abundant throughout the State from early June to late September. MIMOSA WEBWORM (Homadaula albizziae) was again a major pest on mimosa and honeylocust from early July to late September. FALL WEBWORM (Hyphantria cunea) was most abundant in Sussex County from July to September.

WALNUT CATERPILLAR (*Datana integerrima*) fed extensively on walnut throughout the State during late July and August. CATALPA SPHINX (*Ceratomia catalpae*) infestations were very heavy on catalpa in Kent and Sussex Counties. YELLOW-NECKED CATERPILLAR (*Datana ministra*) was again very abundant, being very heavy on pin and red oak. EASTERN TENT CATERPILLAR (*Malacosoma americanum*) was statewide, but considerably less abundant than in 1957. LOCUST LEAF MINER (*Chalepus dorsalis*) was moderate to heavy on black locust in New Castle and Kent Counties during mid-June. WILLOW SAWFLY (*Nematus ventralis*) was unusually abundant on willows during August and September in Sussex County. WHITE-MARKED TUSSOCK MOTH (*Hemerocampa leucostigma*) was common to heavy statewide during mid-September on sycamore and elm. An OAK SAWFLY (*Caliroa lineata*) was noticeably injurious to pin and red oak in late September in New Castle County. VARIABLE OAK LEAF CATERPILLAR (*Heterocampa manteo*) was common to heavy on oaks in mid-July. ASIATIC OAK WEEVIL (*Cyrtepistomus castaneus*) caused noticeable injury to oaks throughout the State during mid-July. BUCK MOTH (*Hemileuca maia*) was common on oaks. A SCALE (*Cryptaphyllaspis liquidambaris*) was common on sweetgum in New Castle County. GREEN-STRIPED MAPLEWORM (*Anisota rubicunda*) fed lightly on red maple in August. SPINY OAKWORM (*Anisota stigma*) was light on red oak during late July in Sussex County. TULIPTREE APHID (*Macrosiphum liriodendri*) abundance increased over 1957 in New Castle County. SPRING CANKERWORM (*Paleacrita vernata*) was serious on elms during May in Sussex County. BIRCH LEAF MINER (*Fenusa pusilla*) remained light on birch. WEBWORMS (*Salebria afflictella* and *Tetralopha melanogrammos*) caused conspicuous injury to sweetgum in Sussex County in September. A SPIDER MITE (*Oligonychus bicolor*) was moderate on willow and red oak in New Castle and Kent Counties. A LEAFHOPPER (*Typhlocyba modesta*) was collected from red maple in October. A WHITE FLY (*Aleurochiton forbesii*) was moderate on red maples in New Castle County. An AZALEA CATERPILLAR (*Datana major*) was light on blueberry in Sussex County. A JAPANESE WEEVIL (*Pseudocneorhinus bifasciatus*) caused noticeable injury to azaleas in Sussex County in July and August. Probably scattered throughout the State.

Insects Affecting Man and Animals: MOSQUITOES - *Aedes sollicitans* and *A. vexans* reflected very little change over 1957. *Anopheles quadrimaculatus* and *Culex salinarius* were much more abundant than in 1957, indicative of the conditions usually encountered during an extensive wet season. HOUSE FLY (*Musca domestica*) was less severe generally than in 1957. AMERICAN DOG TICK (*Dermacentor variabilis*) was rather numerous from mid-April to mid-June. BLACK WIDOW SPIDER (*Latrodectus mactans*) was fairly common in various sections of the State. BROWN-BANDED ROACH (*Supella supellectilium*) was reported mostly from New Castle County.

Miscellaneous Insects: EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) was normal with most reports during the spring swarms. CLOVER MITE (*Bryobia praetiosa* complex) invaded homes with majority of complaints in March and April. Heaviest in New Castle County. PAVEMENT ANT (*Tetramorium caespitum*) swarms occurred in buildings in New Castle County during January.

Weather continued from Page 1006

Oklahoma, most of Arkansas, southwestern Missouri and northwestern Mississippi. In Upper Michigan, depths ranged up to 36 inches. Snowfall at Oswego, New York, continued to attract attention as additional falls there during the week boosted the seasonal total to date to over 80 inches, with even higher totals reported in surrounding hill areas. California's drought is reaching record proportions, as virtually no precipitation fell in the Far Southwest. Seasonal precipitation to date at San Francisco is only 10 percent of normal, the driest such period there since 1849. Only patches of snow were reported in the Sierras. Considerable precipitation fell in the Pacific Northwest, and 1-4 inches of snow covered the wheat regions of Washington State. Severe glaze occurred from Bellingham, Washington, to the Canadian Border during a brief cold snap there early in the week. The ground was frozen 12 inches deep in northern Wisconsin, and Minneapolis, Minnesota, reported 8 inches of ice in the Mississippi River. (Summary supplied by U. S. Weather Bureau).

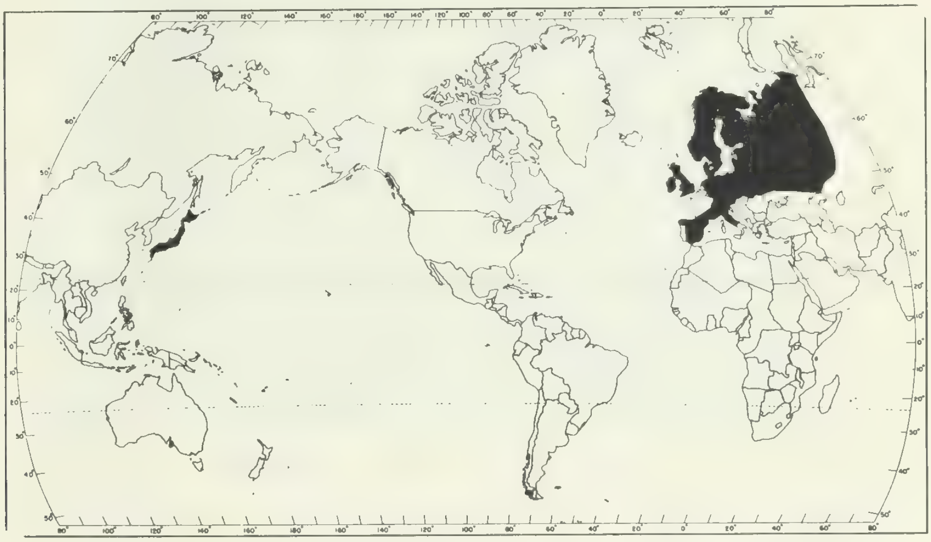
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PINE MOTH (*Panolis flammea* (Denis and Schiffermuller))

Economic Importance: Pine moth is one of the most destructive insects of coniferous forests in Europe. Two sucessive attacks will kill a pine forest. In 1924, about 425,000 acres of forest were defoliated in northwestern Poland and northeastern Germany. This necessitated the cutting of over 400 million board feet of pine and fir in that area. Severe outbreaks have been reported in other years in Germany and in the Kharkov area of USSR, Czechoslovakia and Finland.

Distribution: British Isles, most of continental Europe and Japan.

Hosts: Pine preferred. Also attacks silver fir, Douglas-fir, spruce, juniper, European larch and some broad-leaved trees.



General Distribution of *Panolis flammea*

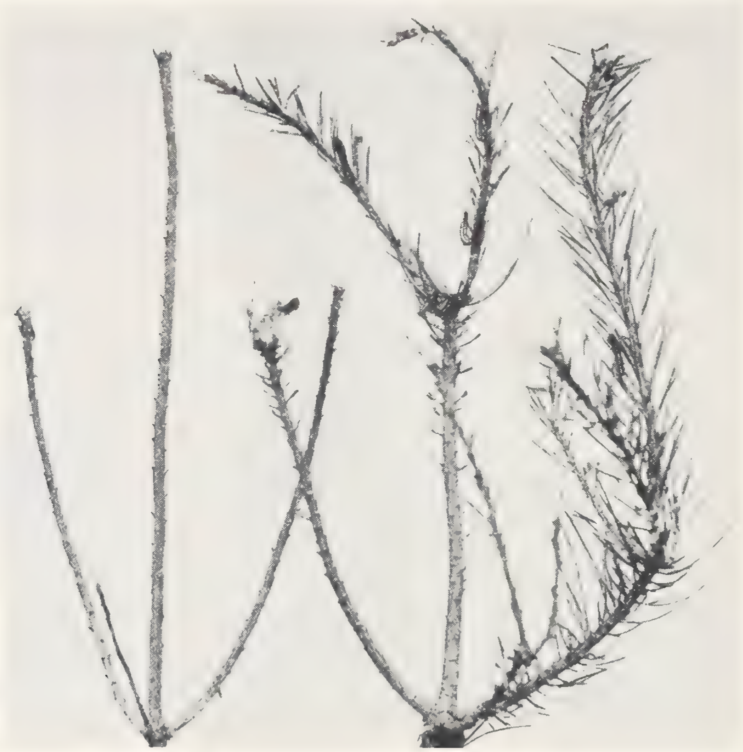
Life History and Habits: The moth is not commonly observed, being a night-flying species. Emergence occurs in March or April. The eggs are deposited in batches of 4 to 8 on pine needles of the preceeding year. Trees with dense foliage are preferred. The larval period coincides with the opening of the buds and the young growth is quickly devoured in an infestation. At a slight disturbance the larva drops to the ground by means of a silken thread. Feeding continues up to the end of July at which time the full-grown larva drops to the ground where it pupates. The winter is passed in this stage. In heavy infestations the old foliage is consumed along with the new, thereby leading to tree mortality.

Description: Adult spread 30-40 mm. Head and thorax rufous mixed with white, tarsi ringed with white, abdomen generally brown. Forewing rufous suffused with gray and white (see illustration), veins white and brown. Hindwing fuscous brown, cilia white at tips; underside whitish suffused with rufous, a discoidal spot and curved postmedial line with a slight dark streak at the veins. Color of larva varies with stage. At first, head is brownish and body clear green.

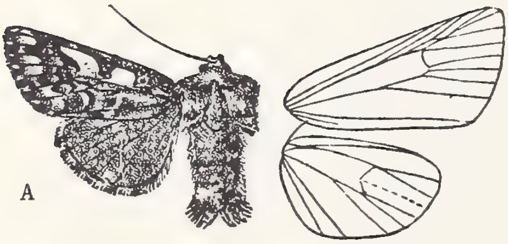
(Noctuidae, Lepidoptera)

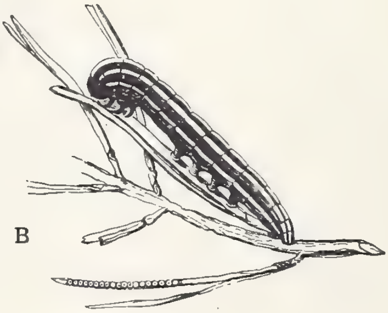
No. 71 of Series

After each molt the larva becomes more deeply colored, deep green to pale brown with scattered black dots and white dorsal line. Subdorsal line also white, sometimes double, black-edged. Spiracular line white, edged below with orange or yellow. (Prepared in Plant Pest Survey in cooperation with other ARS agencies.) CEIR 8 (51) 12-19-58



Damage to Pine by *P. flammea*





Adult Male (A), Larva and Eggs (B) of *Panolis flammea*.

Figures (except map): Larva and eggs from Koch, R. 1913. Tabellen zur Bestimmung Schadlicher Insekten an Kiefer und Larche. 207 pp. Berlin. Adult from Hampson, G. F. 1905. Catalogue of the Noctuidae in the Collection of the British Museum. Vol. 5, 634 pp. Damage from Sachtelben, H. 1929. Monograph. zum Pflanzenschutz 3, 160 pp. Berlin.

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